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Application for approval of a plan of work for exploration for polymetallic nodules

Executive summary*

1. G-TEC Sea Minerals Resources NV (GSR) is pleased to submit the present application for exploration for polymetallic nodules. The application is for approval of a plan of work for exploration by way of a contract to be issued by the International Seabed Authority. The area in question lies within the Clarion-Clipperton Fracture Zone in the Pacific Ocean. GSR believes it fulfils the requirements set out by the International Seabed Authority and is confident that it has both the technical and financial resources to make a positive contribution to the exploration of the Area and the work of the Authority in this respect.

2. GSR, a Belgian company, is making its application for an area of the seabed where the former Union minière de Belgique, now Umicore, was active under a former United States licence (USA-3) granted to Ocean Mining Associates (OMA). Umicore supports the application and future exploration programme of GSR, and shares its historic expertise in and knowledge of both polymetallic nodules and their industrial refining. This pioneer Belgian involvement in polymetallic nodule exploration and test mining is the inheritance of GSR. A formal letter from Umicore in this regard is included in the application file of GSR.

3. In support of GSR, the Government of Belgium confirms, by letter enclosed in the application, having relevant legislation under preparation and provides the certificate of sponsorship. The Ambassador of Belgium to Jamaica, Mr. Frédéric Meurice, also assists GSR in its contact with the International Seabed Authority.

4. Belgium has a long history of involvement with deep sea exploration and polymetallic nodules. In 1891 renowned Belgian geologist Alphonse François Renard, together with Sir John Murray, wrote the Report on the Scientific Results of the Voyage of *H.M.S. Challenger*, during the years 1872-1876: deep sea deposits. It is this scientific report that initially identified the potential resources of nodules that lie at the bottom of the Pacific Ocean.

* Submitted by G-TEC Sea Minerals Resources NV (GSR).

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5. Both the Renard Centre of Marine Geology and the Marine Biology Research Group of the University of Ghent support the application made by GSR. The Centre and the Research Group will provide advice and participate in the execution of the plan of work for exploration. The Research Group brings leading edge scientific research into seabed organisms; it has contributed directly to the 2006 Intergovernmental Oceanographic Commission work on the biodiversity and distribution of mega fauna associated with polymetallic nodules. The Centre and the Research Group have confirmed their engagement with GSR by separate letters, both of which are included in the GSR application.

6. Professor Michel Hoffert, an expert to the International Seabed Authority from the University of Strasbourg, is an exclusive scientific adviser to GSR. He has a library of information at his disposal as well as the knowledge he has developed over many decades working in the Area on polymetallic nodules. He is also in contact with many experts in this field and forms an important bridge to data and information, both for exploration and for educational purposes. Professor Hoffert will maintain his advisory role to GSR during exploration activities under the plan of work.

7. GSR was set up by G-TEC as an ad hoc daughter company to develop the exploration of the Clarion-Clipperton Fracture Zone in the Pacific Ocean. G-TEC is an engineering and survey company that operates internationally and specializes in exploring, detecting, analysing and surveying underwater sites by using the latest and most sophisticated underwater technology. It is a private company, established in 1993, with headquarters close to Liège, Belgium, and branch offices in the Netherlands, France and Morocco. The company is active in site investigation for major land and marine infrastructure projects. G-TEC intervenes as a specialized contractor and consultant in environment, geophysics, hydrography and engineering geology, and operates around the world, on land and at sea. It provides a highly qualified and motivated team of geo-engineers, Earth scientists, hydrographers, biologists and electronic engineers, who deliver efficient and innovative solutions for site investigation and surveys. G-TEC has become an important player in leading companies towards mining authorization by taking care of the complete application procedure and by identifying favourable areas for future exploitation. These multi-criteria analyses also provide GSR with tools to select the best mining method with regard to technical, environmental and human constraints.

8. The GSR lead partners have significant technical, operational and financial resources and capabilities. They have highly developed logistics skills and operational activities in the offshore industry as well as knowledge of the practicalities of working in the deep seas of the world. They are innovators of both technologies and methods in this type of sector. One key partner is the world leader in its industry and has a history going back well over 150 years. Umicore, also a global player, has significant expertise in materials science, chemistry and metallurgy as well as, through its predecessor, knowledge of polymetallic nodules and the area under application by GSR. The GSR lead partners are well known to the Government of Belgium but have requested that their identity not be made public at this time.

9. GSR, as an entity contractually supported by its partners, has the financial resources at its disposal to undertake the programme of exploration and to meet the International Seabed Authority requirements. Consequently, GSR does not require financing for the proposed activities under the plan of work for exploration through borrowing.

10. In addition to the knowledge, experience and skills of its partners, GSR has seasoned managerial skills and technical capability in-house to meet the exploration programme. It will apply the principles of ISO (International Organization for Standardization) 14001 to the exploration programme.

11. GSR will apply both standard and proven techniques to the exploration programme. It will develop and innovate to meet the needs of the exploration work; exploration requires both adaptive management and the ability to retain focus on the intended goal of the activities, that being to develop sustainable mining for exploitation within the allocated area. The company will seek additional expertise and sound partnerships to enhance the programme and engage in the activities of the International Seabed Authority in this respect.

12. The economic feasibility of exploiting polymetallic nodules is dependent upon geological and environmental conditions, on the one hand, and upon technological issues, on the other. Furthermore, it must be mentioned that most of the area under application is located between latitudes 14° N and 16° N, with a southern extension towards 12° N, which thus situates it in the best latitudinal range in terms of nodule abundance according to the International Seabed Authority's own Technical Note 6.

13. GSR has defined contours of estimated value in the area under application and made a division of that area into two parts of equal commercial value in terms of recoverable metals in mineable areas. It has used consistent and publicly available data (as discussed with the International Seabed Authority). Supplementing that data with information and data by Union minière and the personal archives of the GSR team allows for intelligent interpretation and mapping, thus meeting the Authority's requirements.

14. GSR has approached the division of the application area with a view to fairness and equitability, and to reflect the differences that are found across the application area in terms of nodule abundance and value of metals. It is comfortable that this allows the International Seabed Authority to allocate one part of the area to GSR and to retain the other part as a reserved area on equal terms.

15. GSR has developed a 15-year plan for exploration work, divided into three phases; each phase builds on the work of the previous one and follows a logical progression from better understanding of the environment in the allocated area through development of mining technologies, to full mining tests. This programme aims to arrive at the right technology and methods to take forward a future exploitation programme.

16. GSR applies an important conceptual approach to the exploration programme in expanding its understanding of the allocated application area as well as developing it for the future needs of mankind. It will thus carry out educational and research and development activities to facilitate the exchange of information and build capabilities in developing countries. GSR will provide a training programme for candidates from developing nations and formalize this programme with the International Seabed Authority as part of the contract.

17. The anticipated expenditure in respect of the defined programme of activities is $4.9 million for the first year and $5.8 million each year for the second to fifth years, totalling $28.1 million for the immediate five-year period.

18. GSR fully supports International Seabed Authority regulations and guidelines regarding the need to avoid unacceptable environmental harm to the marine environment. It endorses Authority documents that place a rigorous (but necessary) burden on exploration contractors to consider, assess, monitor and review their possible, potential and actual impacts upon the marine environment, and to report those impacts to the Authority.

19. Possible impacts to the marine environment may be related to the operation of vessels used in exploration; potential environmental impacts may be associated with the exploration activities (in particular those related to mining tests).

20. Environmental parameters will have an effect on practical operability in the area, but are essential in order to achieve responsible mining of polymetallic nodules. GSR is responsible not only in terms of the existing biology, but also for the impact of the physical parameters upon any disturbed sediment and upon the health, social aspects and safety of the people working for the company (directly or indirectly). The GSR programme of oceanographic and environmental baseline studies will involve annual cruises to the allocated area for environmental research and data gathering so as to make possible an assessment of the potential environmental impacts of both exploration activities and subsequent exploitation.

21. GSR will apply the international requirements for vessels (for example, through the International Maritime Organization) that aim to avoid harm arising from the deployment of the exploration vessel. The International Convention for the Prevention of Pollution from Ships will be applied as will the Shipboard Oil Pollution Emergency Plan to cover the eventuality of fuel and/or lubricant leakage both on board and over the side of the vessel. GSR will also apply controls and measures in terms of safe working practices at sea, as such also addressing potential hazards and pollution to the environment (water, air or people). Moreover, the company will fully respect the heritage aspects of any finds it may make of archaeological or social significance (to the originating nation and mankind in general).

22. Mitigation measures for the possible impacts to the marine environment have also been identified through the application of an environmental impact assessment process to the plan of work for exploration. The requirement to complete and submit an environmental impact assessment (following International Seabed Authority guidelines) a year in advance of mining tests is clearly understood. The major part of the exploration activities consists of a geophysical and hydrographical survey and small-scale sampling using box core samplers, which are activities evaluated by the Authority and the National Oceanic and Atmospheric Administration as having no significant adverse environmental impact. However, GSR also recognizes that environmental information will be used to inform and drive mining equipment design.

23. Subsequent to approval by the International Seabed Authority of the application (and allocation of the area for exploration), GSR will deliver a considerable programme of exploration and report thereon to (and through) the Authority. It also notes the encouragement by the Authority of shared working (with others who are undertaking exploration) and will actively engage in such activities (although the GSR programme is not dependent upon such collaboration).

24. Belgium, one of Europe's smallest countries, has no classical on-land mining concessions and is, consequently and contrary to many larger economic powers, very keen on developing the full new potential of the deep sea mining industry.

Deep sea mining is destined to become a competitor of classical on-land mining. In defining that new mining industry GSR and Belgium ally themselves with the International Seabed Authority.

25. Improved knowledge of nodule genesis and both conceptual and data-driven mapping of nodule distribution and abundance on the seabed have been achieved since Union minière was active in the Clarion-Clipperton Fracture Zone. Bearing in mind the different economic context and potential limitations to land-based resources in the future, GSR now wishes to start a new period of Belgian exploration in the former OMA area, assisted and supported by its industrial and scientific partners.

26. On 25 May, GSR transferred the required application fee to the account of the International Seabed Authority and is pleased to confirm its position and future active involvement with the Authority.